Internet Access in the Powell River Regional District: Closing the Gaps

Report prepared by Joseph McLean, Full Solution Computers
Commissioned by the Powell River Regional District
December 2016

Full Solution Computers • 604 485-8212 • info@fullsolution.ca
Powell River Regional District • 604-485-2260 • al.radke@powellriverrd.bc.ca

Introduction & Scope

Internet access continues to shape and define the Powell River region, with far-ranging effects. Where coverage exists, residents enjoy unprecedented quality and speed of access. Unique for a community of its size and relative isolation, Powell River benefits from significant and sustained network investment, a healthy competitive environment, and a variety of latest-generation technologies.

Alas, the story is not universal. The great blanket of internet coverage still has holes, "gap areas" where service is unreliable, slow, or expensive. The comparison is almost fantastic, with over 95% of residents able to access high speed internet beyond the wildest dreams of the remaining few. The fastest internet technology in the region is now about 6000 times faster than the slowest[1].

In the five years from our last report[2], incremental change has reduced or eliminated most gaps. Many of these changes occurred without fanfare, so that some residents may not be aware of all options available to them.

The Powell River Regional District (PRRD) has commissioned this report to examine the state of connectivity in the region, identify gaps, and suggest solutions for extending service. Gaps may be a simple lack of coverage, or a prohibitive subscription cost. The report was researched and completed during the last quarter of 2016.

Residents in gap areas cope with lowered properly values[3], lack of access to important services, and reduced economic opportunities. While most of us take high speed internet for granted, the remaining groups are still waiting, hoping this will be their year.

---

[1] 56k dialup vs. 335,000k Bell LTE Advanced cellular; Bell is 5982 times faster. Theoretical maximums used for both services.

[2] See *Internet Access in the Powell River Regional District: 2011 Refresh,* published by the Powell River Regional District.

[3] Interview with Dawn Adaszynski, Managing Broker at Royal LePage Powell River. "I would say yes. [Lack of high speed Internet access] reduces demand for that area, which reduces property values."

Definitions

When preparing a report on technology, it is perhaps inevitable that we encounter acronyms and other technical jargon. In the interests of accessibility, this report has been written in a way that de-emphasizes such terms, making them optional. Terminology is still included for technical accuracy, but there is no requirement to understand it in order to understand what follows.

One term is important to define: For the purposes of this report, the terms “broadband” and “high speed internet” refer to any type of internet access that operates at 5 Mbps (Megabits per second) or faster[4]. This measure of speed is the modern definition of broadband in Canada, as set by the Federal Government[5]. This number will increase as network requirements continue to evolve. For our first report[6] in 2009, broadband was defined as 1.5 Mbps. Since then, the increase has been threefold.

With a 5 Mbps connection, a user can stream HD video[7], download computer updates at a reasonable speed, receive large email attachments, purchase and download apps, play internet radio, use Skype or Facetime[8], enjoy various cloud services, and generally participate in the modern internet. You won’t be the fastest, but you’ll be in. This is for a single user – a family or office space requires a faster connection to achieve an equal level of performance.

By contrast, dial-up phone modems are rated at 56 Kbps (Kilobits per second). Since 1 Megabit = 1000 Kilobits[9], a dial-up modem is at least 89 times slower than broadband. None of the features mentioned above are accessible through dialup.

Broadband does not refer to any one technology, but merely to a *minimum speed limit*, which we are fixing at 5 Mbps.

---

[4] Minimum 5 Mbps download, 1 Mbps upload. Most internet access is designed to favour download speed, the speed that data is sent *to* you. Upload speed is data *from* you.

[5] *CRTC: Internet Speed and Performance*

[6] See *Internet Access in the Powell River Regional District (2009),* published by the Powell River Regional District.

[7] Netflix Internet Connection Requirements: 5 Mbps recommended for HD quality

[8] All brand names used for illustrative purposes and are held by the owner.

[9] US National Institute of Standards and Technology: *Prefixes for binary multiples*

How Access Works in the Region

To better understand how access is provided through the region, a brief description of service providers is required.

Starting in the city of Powell River, wired access is provided by **Shaw**, **Telus**, and smaller **third-party resellers** who resell those lines. Shaw uses TV cables to deliver service, while Telus uses phone lines (DSL[10]) or fibre optic cables. This wired infrastructure extends through Area B south to Stillwater, and north as far as Sturt Rd near Southview. It is considered "normal internet access" in this report.

Mobile (cellular) data is provided by Canada's three national carriers, **Bell**, **Rogers**, and **Telus**, and their associated flanker brands[11]. Coverage and speed are slightly different for each carrier. The region's challenging topography means some rural areas do not have suitable service, especially those inland or shielded by hills. A minimum service level is required for mobile data; those on the edge of service do not have a strong enough signal to sustain connectivity. Devices called boosters can help address this.

All 3 carriers support 4G LTE Advanced, the fastest mobile standard in the world. Mobile plans often have heavy traffic charges, although this is changing.

Moving to the islands, service is provided by local providers **GBIS** (Texada), **LIAS** (Lasqueti), and **Twincomm** (Savary, Lund, Hernando, Texada, etc).

Some residents still rely on **dialup**, an obsolete technology that is being phased out by larger providers. Dialup is not suitable for modern internet access.

Xplornet Satellite service fills in the remaining gaps, reaching virtually everywhere in the region. A view to the south-east is generally all that's required; some sites require custom set up (and higher costs) to achieve this, but it's all generally possible. Some latency occurs in satellite transmissions – there is a <1 second delay from when you click to when the data begins to deliver. Satellite has traditionally been much more expensive and less powerful than other options, but this too is changing.

---

[10] DSL stands for digital subscriber line, a method of providing broadband over a public phone network.

[11] Flanker brands are cellular providers that are owned by larger providers. For example, Fido is owned by Rogers, Virgin Mobile is a owned by Bell, and Koodo is owned by Telus. None of these brands appear to offer Internet hubs or data plans for home internet, so they will not be mentioned in this report.

Recent Developments

In the five years following our last report, significant changes have occurred in the region. The companies providing service are essentially the same, but coverage areas have grown, while most services have improved in speed[12] – some by a factor of ten.

This does not always translate into savings, with many customers paying slightly more for internet service than before. Crucially, prices have decreased in gap areas, lead by new offerings by Telus and Xplornet. This has acted as a great equalizer, bringing the cost of rural service much closer to traditional internet access.

A summary of major changes are provided below.

2012 Xplornet Satellite Launch: As forecast in both our reports, Xplornet Communications[13] saw capacity and price improvements with the launch of the Jupiter 1 Satellite[14] in July 2012. We highlighted this launch as an expected improvement for residents in underserved areas[15].

Prior to launch, a 1.5 Mbps account cost $120 a month, only barely qualifying as broadband at the time. Today a 10 Mbps account costs $70, a 6x speed increase with a savings of 40%. Startup costs have been cut from $500 to $100, installation is now free, and contract lengths have been reduced. Although issues with reliability and latency continue to hinder some users[16], the overall effect is a huge equalizer for rural residents.

2015 Telus Fibre Optic Roll Out: In 2015, Powell River become one of the first communities in Canada to receive Telus PureFibre. At 150 Mbps, PureFibre is the fastest wireline service in the area. Unique in Powell River, the service includes upload speeds of 150 Mbps as well (normally upload speeds are much reduced).

---

[12] For example, Telus's maximum wired access speed has moved from 15 Mbs to 150 Mbs.

[13] Previously Barrett Xplore

[14] Also known as EchoStar XVII. The launch and its implications for the Canadian market are covered in the Globe & Mail article *Satellite to shatter urban-rural digital divide*, published Jul 5 2012

[15] "The Xplornet Jupiter satellite system remains on schedule for widespread availability in 2012. This availability is expected to bring heightened speeds and lower costs to rural residents" - *Internet Access in the Powell River Regional District: 2011 Refresh*

[16] As discussed later in this report, "Remaining Barriers to Rural Access"

This enables exciting new applications for the city, including server hosting, advanced video broadcasting, call centres, and high end telecom for demanding work-from-home requirements.[17] [18]

The initial roll-out is now essentially complete, and largely covers the city of Powell River as well as Area B to the south[19]. The service also provides access to the Tla'amin Nation village (formerly Sliammon) in the north. Telus remains interested in other potential areas of fibre optic expansion.[20]

2016 Telus Smart Hub Promotion: As identified in previous reports, mobile data holds tantalizing promise for the region. Extremely fast, with significant coverage area, there's one problem: restrictive traffic limits backed by high overage fees.

While Bell and Rogers have taken some good steps to address this, Telus has blown the lid off with a temporary promotion that exceeds normal (wired) data limits. This is a first for the region, and perhaps for Canada. Along with a free smart hub (a 4G wireless router), the promotional plan gives 50 GB for a monthly price of $60, 250 GB for $75, and 500 GB for $110; Telus's normal costs for those amounts were 50 GB for $335, 250 GB for $1285, and 500 GB for an whopping $2585 a month.

Like the other changes listed above, this is a significant game changer. The trial promotion ends Dec 31, 2016, but we expect modernized data plan pricing to follow soon after, informed by Telus's experience with this pilot project.

2016 Termination of Telus Dialup: In the midst of network improvements, Telus moved to discontinue dialup service across the country. While obsolete, the service was crucial for some residents, and is discussed in detail later on.

Other improvements: As discussed, most providers saw improvements in coverage area, signal strength, and overall speed of service. This did not occur as a single event, but as the result of incremental, continuous effort from providers and engineers on the ground.

---

[17] The Peak, *Internet speeds economic development in Powell River*. Sep 14, 2016.

[18] See Appendix C for discussion of a new local group to support those who work online.

[19] Telus PureFibre availability map

[20] Discussion with Telus General Manager Ned Hodaly

Internet Service Providers Today

The Powell River region is served by **7 main internet service providers**[21] [22], through a variety of wired and wireless technologies[23]. A summary of these providers is included on the next page, along with some comparisons[24] in cost. Providers offer a variety of account speeds, not all of which are listed here.

Third-party resellers also do business in the region. These providers use existing Shaw Cable or Telus DSL infrastructure with their own accounts. They have no effect on the overall coverage area, but add variety and competition to the landscape.

Not all third-party providers are active locally, despite being authorized. For this report, we chose four resellers with confirmed active users. Including these providers brings our **total to 11 in the region**.

Comparing Internet Access Providers is an imperfect science. Each provider offers their own blend of features, speed, technical support, and traffic allowance. Some providers have startup costs, while others do not. Many serve a single area, or fill a specific need.

That being said, it is important to create **a frame of reference for all providers**. Not to highlight the slowest or the fastest, but to see differences that emerge when mobile, wired, radio, dialup, and satellite plans are compared together.

In preparing these tables, we've priced each provider with 3 scenarios: A **lowest cost** option, a **typical cost** that an active user might encounter, and a **high traffic** cost (no even that high, just a reasonable 100 GB per month[25]). For some providers, all three prices are the same. For others, significant differences appear.

---

[21] A full listing of Internet Service Providers appears in Appendix B.

[22] Telus provides service through a number of different divisions; they are counted as a single provider.

[23] For the purposes of this report, "Wired or Wireless" refers to the kind of technology used to reach the home. Inside the home, most consumers are using wireless (wi-fi) connections.

[24] This report is not intended as a comprehensive review of regional internet service providers. Comparison data is based on publicly available information and marketing, checked against real-world network testing, local end-user reports, provider surveys, and our own experience in the field.

[25] The Average Canadian household traffic was 69 GB/month in 2015, set to increase by 19% per year. This gives an estimate of about 82 GB/m for 2016, 100 GB for 2017. Canada 2015 Year in Review, Cisco Systems. Some users use significantly more data, but to keep comparisons reasonable 100 GB will do.

Internet Service Providers Comparison Table

Provider Name	Technology	Lowest Cost	Typical Cost	Cost for High Traffic
Shaw	Cable	$55 5 Mbps	$66 15 Mbps	$66 (150 GB Limit)
Telus	DSL	$63 6 Mbps	$68 15 Mbps	$68 (200 GB Limit)
Telus PureFibre	Fibre Optic	$85 150 Mbps	$85 150 Mbps	$85 (1 TB Limit)
AEBC Internet Corp	DSL or Cable (Reseller)	$45 15 Mbps	$47 30 Mbps	$47 (Unlimited)
Internet LIGHTSPEED	DSL (Reseller)	$30 6 Mbps	$40 15 Mbps	$40 (325 GB Limit)
JUCE Communications	Cable (Reseller)	$34 5 Mbps	$57 20 Mbps	$57 (Unlimited)
Uniserve	DSL or Cable (Reseller)	$44 5 Mbps	$49 15 Mbps	$49 (Unlimited)
Xplornet	Satellite	$50 5 Mbps	$70 10 Mbps	$110 (100 GB Limit)
Bell	Cellular	$10 150 Mbps, 100 MB	$105 150 Mbps, 20 GB	$905 (20 GB Limit + 80 GB)
Rogers	Cellular	$10 40 Mbps, 100 MB	$90 40 Mbps, 20 GB	$145 (100 GB Limit)
Telus Mobility (New Account Promotion)	Cellular	$10 25 Mbps, 100 MB	$60 25 Mbps, 50 GB	$75 (250 GB Limit)
Telus Mobility (Previous Normal Price)	Cellular	$10 25 Mbps, 100 MB	$85 25 Mbps, 10 GB	$335 (10 GB Limit + 90 GB)
Gillies Bay Internet Society (GBIS)	Radio	$27 12 Mbps, 30 GB	$40 12 Mbps, 50 GB	$80 (100 GB Limit)
Lasqueti Internet Access Society (LIAS)	Radio	$38 7 Mbps, 5 GB	$44 7 Mbps, 20 GB	$73 (100 GB Limit)
Twincomm	Radio	$44 8 Mbps, 20 GB	$64 8 Mbps, 60 GB	$100 (15 Mbps, 110 GB Limit)
Uniserve (Dialup)	Phone Line	$24 56 Kbps	$24 56 Kbps	N/A (Impossible over dialup)

Notes: Prices and speeds are rounded. For simplicity, we have not listed discounts, setup fees, bundles, add-ons, taxes, or other account variables. Residential pricing used, some providers have separate business pricing. See Appendix B, and contact your service provider for an exact quote. Any $10 accounts listed are entry-level and will not apply to most users.

Typical Monthly Costs: Reaching Parity

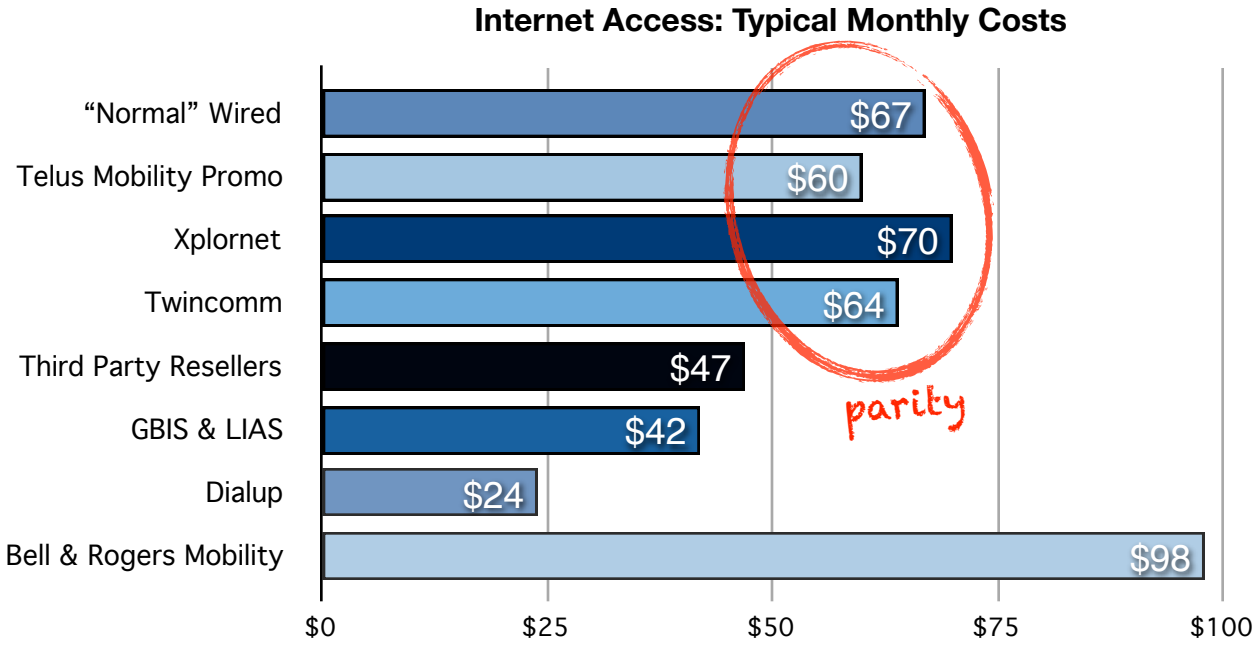
Important trends begin to appear when we look at typical[26] monthly costs. First, the standard for **"normal" wired access** is about **$67** (Shaw Cable or Telus DSL**)**.

Telus's promo mobility plan is similar, at **$60** a month. At **$70**, **Xplornet** fits the same kind of price bracket. So does **Twincomm** at **$64**.

Using Shaw or Telus lines, **third-party resellers** go low at ~**$47**. And the nonprofit societies **GBIS & LIAS** make us proud with an industry-leading price of ~**$42.**

Of note, dialup is only **$24**. Dialup is terminally slow and cannot compare to other access. It is included to show the cost change for people moving to modern accounts.

Rogers & Bell offer less data and carry the highest cost, ~**$98**. This is a reminder of the traditional inequities in gap areas. Newly aggressive competition will affect these prices.



This chart doesn't show inequity. This shows parity between normal internet access and access in rural areas. The rural/urban divide has been bridged, and **price parity has come to the region**. In some cases, rural access is actually *cheaper*.

[26] The definition of "Typical Household Use" is important; for criteria please see Appendix A.

Lowering the Barriers to Access

Despite gains in price and performance, barriers remain for equal access in the region. WIthout a doubt, they are not as severe as before. Some barriers apply to specific kinds of users, while others have been cut down significantly in recent years. Some issues are the same across the region – for example, prices could still be lower. A summary of these barriers is listed below, along with potential ways to address them.

Affordability

Although typical internet prices are now equal across the district, they're still 2-3 times higher than traditional dialup costs. This has a punitive effect on low income residents, especially those who live remotely. Urban residents can access public hotspots and internet terminals[27], offering fast, free Internet access to those who need it most. Rural residents must travel to access these services.

Where normal wired service is available, residents have access to third-party resellers. Other areas do not have this level of competition, or the price savings it offers.

Verdict: Affordable internet access is a national challenge. Lack of free access points and competition in the rural area makes it sting more, but this issue affects us all. There are often discounts or funding available for low income households, homeschool and student use, etc; these are provided by many different groups and not widely promoted. Consumer awareness of these programs is important. Further recommendations and resources are discussed in Appendix C.

Startup costs

Normal wired accounts have minimal or no startup fees, and usually begin with discounts for the first few months of service. Likewise, typical mobile internet has minimal startup fees[28]. Other forms of access (including third-party resellers) often carry a startup cost, such as a one-time equipment purchase, an installation fee, or both. Xplornet charges a newly reduced $99 startup fee, with no installation cost. GBIS and LIAS charge around $150, but their low monthly costs compensate for this within the first two years.

---

[27] Numerous coffee shops, business, Telus Direct, and libraries (Powell RIver & Texada) all provide free wifi. See WifiCafe listing for examples. Both libraries also offers public computers for internet use.

[28] Cellular equipment is generally free on contract; some charge a ~$20 Connection Fee.

Verdict: Startup costs act as a minor barrier for users. Most providers roll these costs into their monthly fees; smaller providers often do not. These groups could consider offering a higher monthly fee option that would defray startup costs.

Support

Many residents report difficulty securing on-site support from their service provider, whether they live in the city or farther afield. With widespread service popularity and relatively low overhead, providers may not have enough technicians for quick response. While this is not a gap issue, there are unique travel challenges to reach remote residents. That can easily delay or defer response, leading to great frustration.

In addition, telephone support varies widely from different providers. Larger providers use call centres, most in Canada and some in other countries. Local providers offer their own support, but are sometimes stretched thin.

Verdict: Support can always be better. This is not specifically a rural issue, except where remote residents are challenging to visit. Providers should ensure they have a competent phone support pool, and enough good technicians on the ground[29]. Absent of that, independent technicians can help. Local technical experts are an important resource that should be supported. The challenges in reaching remote households is a reality of the landscape we live in, but every paying customer deserves satisfaction.

Reliability

National providers tend to have higher reliability[30], with wired & mobile options performing very well. Bad weather, signal interference, and legacy issues can affect other forms of access, although availability seems good across the board.

Resident reports indicate that some Xplornet installations are not reliable at all, to the point were at least one homeowner moved elsewhere in the region to escape his poor level of service. This is an extreme result, and many Xplornet customers are happy.

Verdict: Urban residents expect and receive a high level of reliability from their

[29] Technicians do not have to be employees of the provider; quite often they operate on a contract basis.

[30] Reliability, or Availability, refers to the constant operability of internet access at a fixed location. It does not refer to coverage, or to operation on a moving target like a boat, car, etc.

providers. Some Powell River residents lose service once a year or less, although this can vary with location[31]. In the farther regions of the district, availability can suffer.

When challenging conditions combine with legacy equipment (described below) or an imperfect installation, reliability takes a hit. Results across the region vary by individual, and can generally be addressed with dedicated attention from the provider, technician, and end user (sometimes at additional cost). Whatever the cause, it is important that rural and remote internet have a high level of availability. Unreliable internet is not acceptable.

Cellular Data Policies

Telus made waves this year with the region's first cellular data plan tuned for heavy household use. This pricing is only offered on new signups from September - December 2016, and future data policies are unclear.

We think of this more as a pilot project than a promotion, especially because Telus marketing has been notably quiet for this plan. Users who sign up before December 31 2016 will be safely locked in, but new accounts may not be offered after that date.

Both Rogers and Bell have taken steps to address higher usage, but only Telus has broken the price barrier and made mobile data affordable. All carriers are expected to offer similarly generous plans in the future, but this is not guaranteed. As we progress towards this, there may be gap periods when new accounts are more expensive. If Telus does not replace or extend this promotion, mobile access will no longer be at price parity with other technologies in the region.

Verdict: Affordable cellular data is an essential part of regional internet access. Taking this new Telus plan as an example, residents (and government) should expect similar data polices on a permanent basis. Don't hesitate to ask your providers for this level of service; customer feedback is essential, and the example is there for all to see.

[31] Resident reports on Telus DSL service, This does not mean the service had 100% uptime, only that it was available when they tried to use it, day or night, within a few seconds of trying. Shaw is slightly less reliable but the difference is minor. This is very good general availability.

Latency

This primarily effects Xplornet, which uses a satellite 36,000 km above the Earth's surface. The distance creates a delay (latency) of about three quarters of a second[32]. All providers experience some latency, but Xplornet's is noticeably longer[33]. After the delay, data flows at the normal speed.

This latency is fine for web surfing, video streaming, downloading, Skype, and most online activities, although some adjustment may be needed for users moving from a low-latency environment. But activities that require fast reaction times are not recommended for Xplornet satellite. Examples of fast-reaction activities include:

- VPN services, often used by teleworkers [34]
- Fast-paced online gaming (eg arcade games, virtual worlds)
- Real-time stock or auction trading

Verdict: Due to latency, some internet activities are not suited to Xplornet service. Xplornet serves a unique roll in covering virtually all of the region; because of this, they are sometimes the only choice available. Lack of support for some activities is a barrier, one that thankfully does not affect most users. Although the slight delay can be annoying, for average users it is a tolerable side effect.

Location

Some areas are still disproportionately underserved. **Craig Road, Malaspina Road,** and **Saltery Bay** were all identified as critical gap areas in our 2009 report. Frustratingly, they are still underserved today. Cellular service has actually declined on Malaspina and Craig Roads, and the Saltery Bay story is even stranger. Boutique cellular provider **Indigiinet** actually set up wireless service there in 2014, and is still providing internet to a few lucky people in the area. New customers have been trying to sign up for more than 2 years, and the company has proved impossible to reach. We were unable to do so for this report. So close, Saltery Bay! The fact that a tower was built underscores the community's status as an important gap area, one that deserves to be fixed.

---

[32] Xplornet, About satellite latency

[33] At ~800 milliseconds, Xplornet's latency is roughly 20 times longer than other services.

[34] VPN = Virtual Private Network, typically used to connect remote employees to their corporate network.

The same holds for Craig and Malaspina roads, which along with their surrounding neighbourhoods contain hundreds of homes. Xplornet serves this area, but Xplornet is not a perfect fit for every scenario. Many still feel underserved, including local businesses like Aero Design Ltd. This Okeover-based company designs, develops, certifies, manufactures, and markets helicopter parts around the world. Xplornet is the only service available to them, and it has not been adequate or reliable enough for the company's needs.

Verdict: Internet quality in traditionally underserved areas has improved a great deal, but it is not always enough. In many of these cases, Xplornet service could be improved by sustained attention from the company and their installers, working closely with end users. In other cases, a different type of service is needed.

It is worth considering if there's room for another service provider in the region, to do exactly what Indigiinet tried at Saltery Bay. Indigiinet didn't exactly fail – the company is not bankrupt, and still provides service. They're just impossible to reach. The system works, and the microtower concept is a great way to extend service into gap areas.

Ironically, Xplornet themselves can offer these towers. Xplornet resellers once canvassed the Powell River area to make a case for building one, but they came up short. That survey could be done again, with full support and widespread promotion of the Regional District.

If warranted, the District could even underwrite some or all of the construction costs. This has been done in various municipalities and regional districts across Canada, and is the simplest way to make a business case for the provider.

Before any investment is made, we must consider the level of service already (or nearly) present. Satellite access can to be quite good, and a next-generation model could launch as early as 2017. Telus is considering additional cell towers, and a case could definitely be made for Malaspina Rd / Okeover, as well as Saltery Bay. Telus likes to go where the tourists go[35], and visitor traffic flows through both these areas (by water and land). Craig doesn't have the tourist numbers, but cellular access on the 101 highway is a safety issue, and there's over a hundred homes within 3 km[36].

---

[35] Foreign visitors generally carry roaming plans, which are big moneymakers for mobile providers.

[36] Known houses listed with the Powell River Regional District, 3 km radius of Craig Rd.

Legacy & Obsolescence

As technologies improve, some users find themselves stuck on legacy systems or less generous plans. For example, individual radios used to serve GBIS, LIAS, or Twincomm require replacement over time. Some of this equipment is installed in challenging locations, on the sides of cliffs, up trees, etc. Installation and equipment costs can apply, as well as the physical difficulty of replacement.

Mobility is another area that is changing rapidly, with some customers stuck on plans & contracts less generous than current offerings.

Verdict: Customers should reevaluate their account performance every few years, to ensure they are getting the best speeds and prices for their region. Rural customers especially will see big changes in that time. Some contracts last 2 or 3 years, so customers should know their contract rights, including penalties for cancelling early. In some cases, the speed and price gains will easily pay off any penalty.

Perception

The final barrier to equal internet access is a subtle one. It is the *perception* that serious gaps still exist. A few years ago, inequities in the region were easy to find[37]. Pricing was high, speed was low, reliability was often poor. People remember this; in fact, many are still living with equipment (or pricing) from that era. Upgrades and cost improvements have come, but the majority of residents are not aware of this.

Verdict: In order to embrace equitable internet access through the region, people must first be aware that it is possible. This report can be part of that effort. Realtors are a key potential advocate, well-placed to explain this to home buyers. This story should go public through the news, and in annual publications that promote the region to the world. Visitor Information staff and other tourist ambassadors can help spread the word to newcomers.

Staff at the Powell River Regional District should be ready to tell residents: *Rural access is often fast and affordable. A lot has changed in the last few years. You may face challenges depending on where you live, but these can usually be addressed. The era of high prices and low speed is thankfully coming to a close. And if you'd like to read more, there's this report…*

---

[37] For many examples, see our access reports published by the PRRD in 2009 and 2011.

Appendixes

Appendix A: The Mythical Typical Household

In comparing different service providers and offerings, we rely on a construct known as "the typical household." Trend data tells us that an average household in BC had 15-25 Mbps service in 2016, generating about 80 GB of traffic per month[38].

So we have some good numbers. But we shouldn't apply the same numbers to all providers, because price plays a direct roll in consumption. A family that uses a metered[39] account with traffic penalties will be more careful than one with a generous traffic allowance.

For a look at consumption unaffected by price constraints, see the final column of our Internet Service Providers Comparison Table, "cost for high traffic". This ignores any price-based behaviour changes, and simply compares 100 GB of traffic on each and every service. This is useful, but we think typical use is more realistic.

In determining the account best suited to a typical user, we consider factors like account popularity, overall cost, comparison to peers, direct competitors, and the expectations of an average modern internet household. This household expects to access a wide variety of information and streaming media online, but they are responsive to price penalties for overuse.

Appendix B: Internet Service Providers

Service providers currently active in the PRRD are listed here in alphabetical order. Bottom-line pricing has been collected, combining all normal costs a user is expected to pay to begin a service, and the monthly costs thereafter. Tax is not included, but every other fee is. Prices are residential; some ISPs charge more to business customers.

A summary and general comparison of ISPs can be found on page 8 of this report.

---

[38] During this time, the average download speed in BC was about 17 Mbps. Real-world performance is always less than stated maximums. Figures from Cisco's Canada 2015 Year in Review and CIRA's 2016 Canada's Internet Performance

[39] Metered accounts charge a variable depending on consumption; because users are charged a sliding rate for traffic, discretionary activities like Netflix are often scaled back or discontinued by the user.

Bell Mobility

www.bell.ca/mobility • 866 301-1942

Although Bell offers a wide selection of internet access products, only its mobile plans are available in the PRRD. Bell has the fastest wireless network speeds in the region, with 335 Mbps LTE Advanced[40]. Because the standard is so new, Bell's typical mobile hub operates at up to 150 Mbps on this network – a smaller number, but still the fastest mobile hub speed here.

Speed of service

150 Mbps Mobile Wireless. Very high speed; fastest wireless available.

Startup costs

$25 (with 2 year contract) for typical equipment[41]

Monthly costs

Cheapest: $10 per month (100 MB Traffic, very light use)
Typical: $105 per month (20 GB Traffic)
High traffic: $905 (20 GB traffic + 80 GB overages, very expensive)

Usage is on a flexible plan, where you pay only for the data used each month[42]. The flexibility is nice, especially for customers who may have varied usage habits. High usage is not advisable on this plan, far too expensive. 100 GB of data transfer would cost $905, by far the highest in this region. Bell has better plans for other provinces, in BC they have been outclassed. We expect that better pricing will come.

Gillies Bay Internet Society (GBIS)

www.gilliesbay.ca/wireless • 855 767-4247

GBIS provides equitable wireless access to about 200 homes on Texada Island. The society has undertaken a series of continuous improvements since its founding in 2008, buoyed by various grants. Wins include the erection of a dedicated access tower on Mt. Pocahontas, radio and network upgrades, and an improved feed from Telus, now at

---

[40] Latest devices are required to reach that speed level. Real world performance between 25-100 Mbps, which means Telus Fibre Optic will still be faster in real world performance.

[41] The ZTE MF275R Hub

[42] Bell Mobile Internet Flex plan

100 Mbps. Previously aligned with the Lasqueti Internet Access Society, the two have amicably separated and operate their own independent networks.

GBIS operates the cheapest access in the region, with the lowest typical monthly costs. This is remarkable achievement, just one of many.[43]

Speed of service

12 Mbps

Startup costs

$150

Monthly costs

Cheapest: $27 per month (30 GB traffic, generous for such a cheap account)
Typical: $40 per month (50 GB traffic)
High traffic: $80 (100 GB traffic)

Lasqueti Internet Access Society (LIAS)

www.lasqueti.ca/services/broadband • 855 767-5427

LIAS provides equitable wireless access to many Lasqueti Island residents, although not all are in range. The society faces legacy issues with some equipment, which must be replaced in order to facilitate faster speeds (to subscribers, and as a whole). Older accounts are slower than the latest CRTC broadband standard, so the society has an excellent case for upgrade funding. While access costs are lower than average, startup costs are very high – these prices could be rolled into monthly costs. LIAS continues to provide very reasonable service in a challenging environment, one that includes rugged west coast terrain, unreliable power, and a widely dispersed population.

Speed of service

7 Mbps. Some legacy accounts are on 2 Mbps service, below standards.

Startup costs

$250 to $450 depending on location and requirements

Monthly costs

Cheapest: $38 per month (5 GB traffic, fairly low)
Typical: $44 per month (20 GB traffic)
High traffic: $73 (100 GB traffic)[44]

---

[43] 2016 Progress Report, GBIS

[44] Lasqueti Wireless - High-speed Internet Access

Rogers Communications

www.rogers.com/consumer/wireless/mobile-internet • 800 616-6286

Of the three national carriers, Rogers was the first to bring 100 GB data plans to the region. Telus has passed them with their temporary promotion, but that may fade after Dec 31, leaving Rogers ahead once again with their regular-priced "Flex Heavy" plan. Rogers uses the latest 4G LTE Advanced networking, tuned at a slightly slower speed than Bell. This is a moot point as the smart hubs they use for mobile internet don't go that fast yet anyway. The 40 Mbps this hub supports is quite fast, making their service the third fastest in the region[45].

Rogers has slightly different signal coverage area than Telus & Bell, who share the same towers. The difference is not as varied as you would expect – as our maps at the end of this report show, it's a similar coverage pattern.

Speed of service

40 Mbps Mobile Wireless

Startup costs

$0 (with 2 year contract) for typical equipment[46]

Monthly costs

Cheapest: $10 per month (100 MB Traffic, very light use)
Typical: $90 per month (20 GB Traffic)
High traffic: $145 (100 GB traffic)

The prices above are from two flexible usage plans: Flex Light for the cheapest account, and Flex Heavy for the other two.[47]

Shaw Communications

www.shaw.ca • 604-485-7756

Shaw introduced high speed to the region in 1998, and lead other providers in speed, coverage, and support for many years. Recently outclassed by latest-generation Fibre Optic and mobility services, Shaw remains a very popular wired provider at average

[45] Fastest is Telus FIbre Optic, followed by Bell Mobility smart hub.

[46] ZTE MF275R Hub. Other options available.

[47] Rogers mobile internet plans

speeds. Shaw continues to expand in the area, recently leveraging government funding to spread south into Stillwater.

Shaw data usage is generous. Although the company has data limits, they are only used to encourage account upgrades. Alone among large providers, Shaw does not charge overages.

Speed of service

5 Mbps, 15 Mbps, 25 Mbps[48]

Startup costs

$0 - no charge for installation or hardware rental.

Monthly costs

Cheapest: $55 per month (5 Mbps, 65 GB. Expensive for what you get.)
Typical: $66 per month (15 Mbps, 150 GB)
Faster: $75 per month (25 Mbps, 300 GB[49])
High Traffic: The Typical & Faster options qualify as high traffic.

Shaw offers bundle savings to customers who order TV service.

Telus High Speed Internet (DSL and Fibre Optic)

www.telus.com/en/bc/internet • 888 811-2323

Telus's new Fibre Optic network has the fastest sustained access speed in the region, and includes balanced upload speeds for a new era of internet performance.

Their normal High Speed Internet is adequate for most users, although the price difference to choose fibre isn't large.

Traffic limits are similar to Shaw, with one important exception. Telus charges for overages, a fairly recent development.

Telus's new Fibre Optic network has the fastest sustained access speed in the region, and includes balanced upload speeds for a new era of internet performance.

[48] Shaw announced faster accounts for the region in 2011, but these no longer seem to be available.

[49] Per representatives, "Shaw does not enforce our 300 GB limit in Powell River, as there is no higher account available."

Speed of service

6, 15, 25, or 150 (Fibre Optic)

Startup costs

$0 - no charge for hardware rental.

Monthly costs

Cheapest: $63 per month (6 Mbps, 150 GB. Expensive for what you get.)
Typical: $68 per month (15 Mbps, 200 GB)
Faster: $73 per month (25 Mbps, 300 GB)
Fibre Optic: $85 per month (150 Mbps, 1 TB)
High Traffic: All options except the cheapest qualify as high traffic.

Telus offers bundle savings to customers who use their telephone or TV services, a common occurrence[50]. This reduces monthly costs by $5 per additional service.

Telus Mobility (Promotion)

www.telus.com/en/bc/internet/new/smart-hub • 866 641-5215

The first mobile plan tuned for heavy use, this Telus smart hub promotion has finally made mobile data affordable for even the busiest households. We only hope that Telus extends the plan in the future, and that other carriers follow suit.

Speed of service

25 Mbps, less than Bell & Rogers but still quite fast

Startup costs

$0 (with 2 year contract) for required smart hub[51]

Monthly costs[52]

Cheapest: $60 per month (50 GB Traffic)
Typical: $75 per month (250 GB Traffic, counts as high traffic)
Extra high traffic: $110 GB month (500 GB Traffic)

---

[50] Telus High Speed Internet Plans. Note that not all plans displayed are available in Powell River; our account information was confirmed separately.

[51] It's the same ZTE MF725R Smart Hub used by Bell & Rogers.

[52] Telus Smart Hub Promotion

Twincomm

www.twincomm.ca • 866-446-6004

Service areas in the PRRD include Lund, Van Anda, and Galley Bay, as well as Savary, Hernando, and Mink Islands. Installation consists of mounting a wireless radio system which receives a signal from a Twincomm's repeater stations. Usage limits and speeds are reasonable. Discounts are available for educational uses, a welcome option. Twincomm has acquired the network assets of MasterOne, a provider that appeared in our previous reports. In addition to wireless services quoted, Twincomm also provides cable internet to about 50 users in Van Anda on Texada Island.

Speed of service

8 Mbps, or 15 Mbps for business

Startup costs

$300 (additional equipment may be required)

Monthly costs

Cheapest: $44 (8 Mbps, 20 GB)
Typical: $64 (8 Mbps, 60 GB)
High Traffic: $73 (8 Mbps, 100 GB Traffic)

Uniserve Dialup Internet

www.uniserve.com • 855 783-6999

As Telus no longer offers dialup, we must turn to alternate providers. Vancouver-based Uniserve offers toll-free dialup at a cheaper rate than Telus. The short-comings of dial-up are well known, but at least the service is relatively affordable[53]. Uniserve is also a third-party reseller of Shaw Cable & Telus DSL, listed at the end of in this section.

Speed of service

56 Kbps, "low speed" no matter how you cut it.

Startup costs

$0, but hardware is not included. If customer does not have a dial up modem, these cost $35-$80 from third parties.

Monthly costs

$24

---

[53] Uniserve Residential Dial Up Internet

Xplornet Communications

www.xplornet.com • 866-841-6001
(Installed locally by **Powell River Satellite Internet:** 604-243-1436)

Satellite goes *everywhere*. That's the message local installer Glen Roscovich tells his clients, and he's right. Speed and pricing has much improved, making the service quite competitive with other offerings. Some users complain of reliability issues, while others are fine: technicians tell us that any issues can be corrected. and that great service is always possible from this company. Xplornet plans to launch another Satellite soon, and continues to grow quickly with the market.

Speed of service

10 Mbps. 25 Mbps service may be available in some cases, at a higher cost.

Startup costs

$99 (with 2 year contract)

Monthly costs

Cheapest: $50 per month (10 GB Traffic)
Typical: $70 per month (50 GB Traffic)
High traffic: $110 per month (100 GB Traffic)

Xplornet offers 4G mobile data services in other regions, and once considered installing cellular towers in Powell River. The survey found not enough customer interest, but it was several years ago and should be considered again. Rural 4G services could extend beyond the reach of traditional mobile carriers, connecting areas that have long struggled with access.

Third Party Resellers

Third-Party Resellers use existing Telus & Shaw infrastructure with their own modems, support, and pricing. They do not expand coverage; instead, they provide additional competition within existing coverage. As such, we will only mention them briefly here.

Of the providers operating in Powell River, we are most familiar with **Uniserve**[54]. Other resellers that have active users in Powell River include **AEBC Internet**, **Internet LIGHTSPEED**, and **Juce.** Follow the links to learn more about these resellers.

[54] Based on resident reports from 2009

Since third-party resellers operate in the footprint of larger providers, they work hard to differentiate their service. Often this takes the form of cheaper costs, generous or unlimited monthly traffic, or an extra level of support. Results and providers do vary. See our table on page 9 for sample accounts and pricing.

Addendum: Full Disclosure

This report was prepared by Joseph McLean and the team at Full Solution Computers. We are locals to Powell River. The following relationships with service providers are listed below, in the interests of full disclosure.

1. Joseph McLean & Full Solution use services provided by Telus, independent of this report.

2. Joseph McLean & Full Solution have worked with John Dove of GBIS in the past, as well as Glen Roscovich, local installer for Xplornet.

3. During our normal work in the region, we have come into contact with or used service from almost every provider listed here.

None of the foregoing should effect the neutrality or conclusions of this report.

Appendix C: Resources

Affordable Internet Access

Typical internet access costs around $65 a month in the Powell River region, or about $800 a year. While affordable for most users, this price is significant for those on limited incomes.

A number of groups offer affordable internet access in the region. The most recent development is the Telus Internet For Good project. This pilot program offers $9.95 monthly internet service to single-parent families receiving income or disability assistance from the provincial government.

Some providers offer discounts for low income users, or for specific types of users like students, homeschoolers, etc. Interested users should contact their service providers.

Some cellular data plans are just $10 a month, but include very limited data allowance. These would be suited for limited browsing & email on a single smartphone. This can be supplemented with free hotspot use (where available). Computers consume substantially more data than mobile phones, and are not suitable for such small plans.

Where available, third-party resellers offer reasonable savings over Shaw Cable & Telus DSL lines. Sometimes there is extra effort in signing up (as well as equipment cost), but many residents find the savings to be worth it.

Internet Usage in Canada

For a entertaining and informative look at internet usage in this country, see the Canadian Internet Factbook and Canada's Internet Performance. Both are published by CIRA, the Canadian Internet Registry Authority.

Powell River Support Group for Online Workers

During our request for comments, local resident Paul Miniato raised the possibility of a local support group for online workers. This group could provide resources and networking for the growing number of locals who work online. The group would welcome business operators, telecommuters, web designers, server hosts, and others who make their livelihood online. Readers interested in launching such a group should contact him by emailing paul@miniato.net.

Member of Parliament Rachel Blaney

MP for Parliament for North Island - Powell River
NDP Deputy Critic for Infrastructure and Communities

Rachel Blaney has a keen interest in solving access challenges. She recently sent a mail-out to local households, soliciting feedback for improving network access in the riding. Two important topics are raising performance in existing communities and closing rural access gaps. She continues to meet with stakeholders and service providers, and welcomes your feedback.

Email: Rachel.Blaney@parl.gc.ca Phone: 1-800-667-8404	Address: Rachel Blaney House of Commons Ottawa, Ontario Canada K1A 0A6

Appendix D: The State of Dialup

Considered obsolete for more than a decade[55], dialup service continued to fill gaps in the region through 2016. Despite incredibly slow speed, the technology remained useful in areas that were not well serviced[56].

On Nov 16, 2016, Telus formally discontinued their dialup access. A representative provided this explanation:

> *"TELUS has maintained our dialup network in order to accommodate the small number of rural customers who continue to use it, however components for dialup networks have not been manufactured for some years. TELUS had been able to continue the service by shutting down parts of our network no longer needed, recycling parts that then become available for repair and maintenance elsewhere. The parts that [we have] been using to maintain dialup [are] no longer sustainable. This is the reason we can't continue the service."*[57]

Uniserve offers toll-free dialup at an improved price[58]. When ordering, customers must be clear that they are requesting legacy dialup and not Uniserve's typical DSL service[59]. Other dialup providers are listed in Appendix B; local reviews are not available. Dialup users that contacted us for this report had all been using Telus.

Residents who have been affected by the loss of Telus dialup are encouraged to contact local MP Rachel Blaney. She has worked with Telus to advance solutions for individuals affected by the loss of dialup access on a case-by-case basis.

With these possibilities, we cannot stray from the fact that dialup is an obsolete technology. Dialup access is 89 times slower than the minimum broadband standard[60],

---

[55] The Economist, *The slow death of dial-up*. March 8, 2007. "Broadband overtook dial-up within OECD countries, and probably worldwide, in 2005."

[56] Based on numerous resident reports.

[57] Confirmed by email and in conversation with Telus representative Divino, Oct 28 2016. Lightly edited for clarity.

[58] Uniserve. "Residential Dialup Internet". Confirmed available by representative.

[59] Resident reports

[60] CRTC minimum broadband standard is 5 Mbps, a comparison of 5000 to 56.

and 300 times slower than an average internet connection[61]. While frustrating to users, the end of Telus dialup is an opportunity to explore faster alternatives, many of which are newly affordable.

Appendix E: Maps

To illustrate our findings, colour Internet Access maps were developed for the district. The three maps are designed so that *minimum service levels* are shown for each area. For example, while mobile internet exists through the City of Powell River, residents generally prefer wired service. That is the service level shown on the map.

As discussed earlier, Xplornet's satellites have nearly universal access across the regional district: if it's on the map, chances are good that a satellite can reach it.

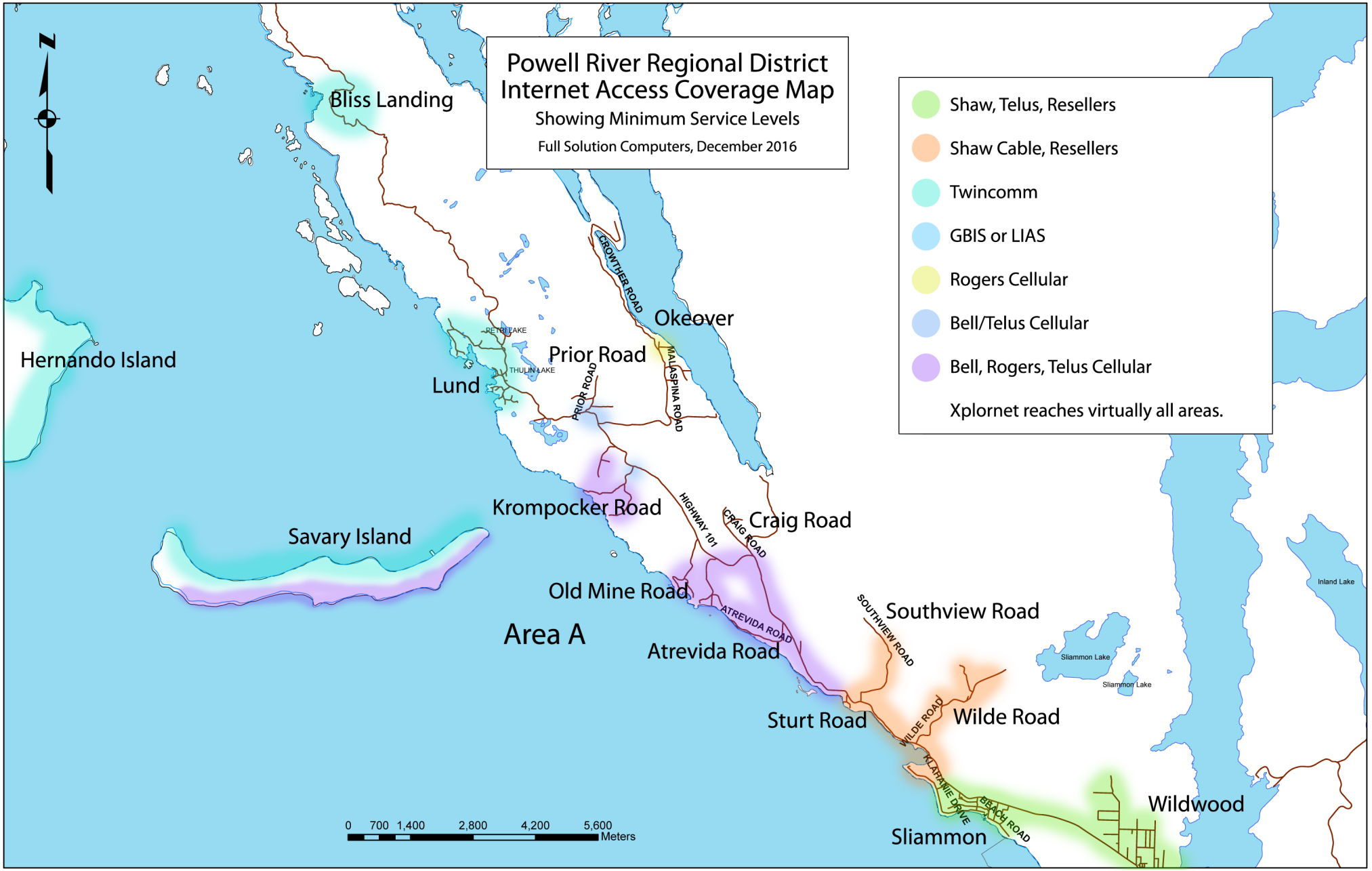
Cellular signal is not shown when signal strength is poor. Poor cellular coverage is not suitable for internet use. Small outage gaps are not shown. More comprehensive testing would be required to illustrate this accurately, and the resulting data would be complex. The maps are intended as a general overview of the area, where patterns are more important than metre by metre accuracy. This perspective allows coverage data to be presented cleanly and simply.

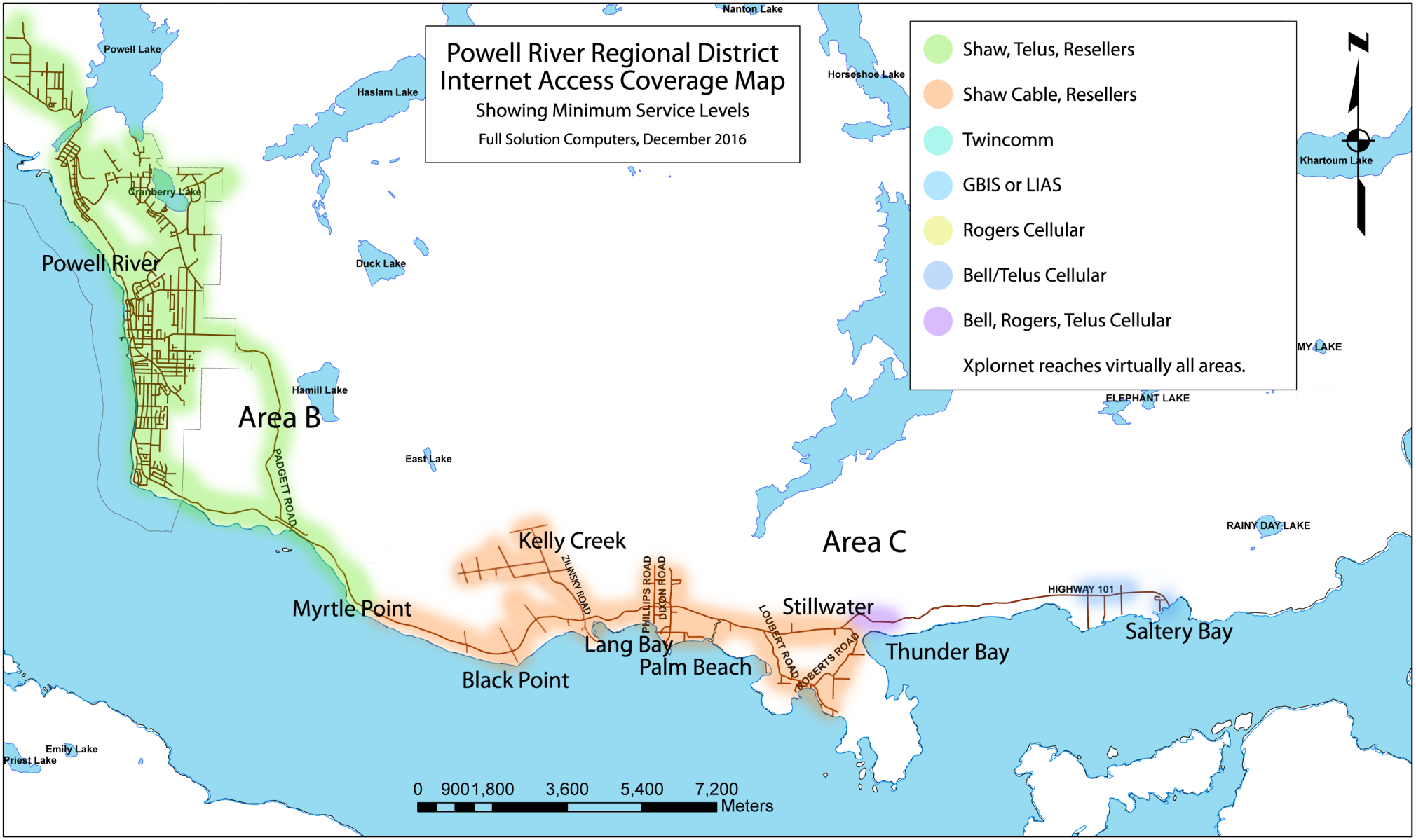
Coverage was tested from inside a stationary vehicle, using a variety of Android & Apple smart phones in field test mode. This approximates the signal strength from inside nearby homes, when the receiver close to a window.

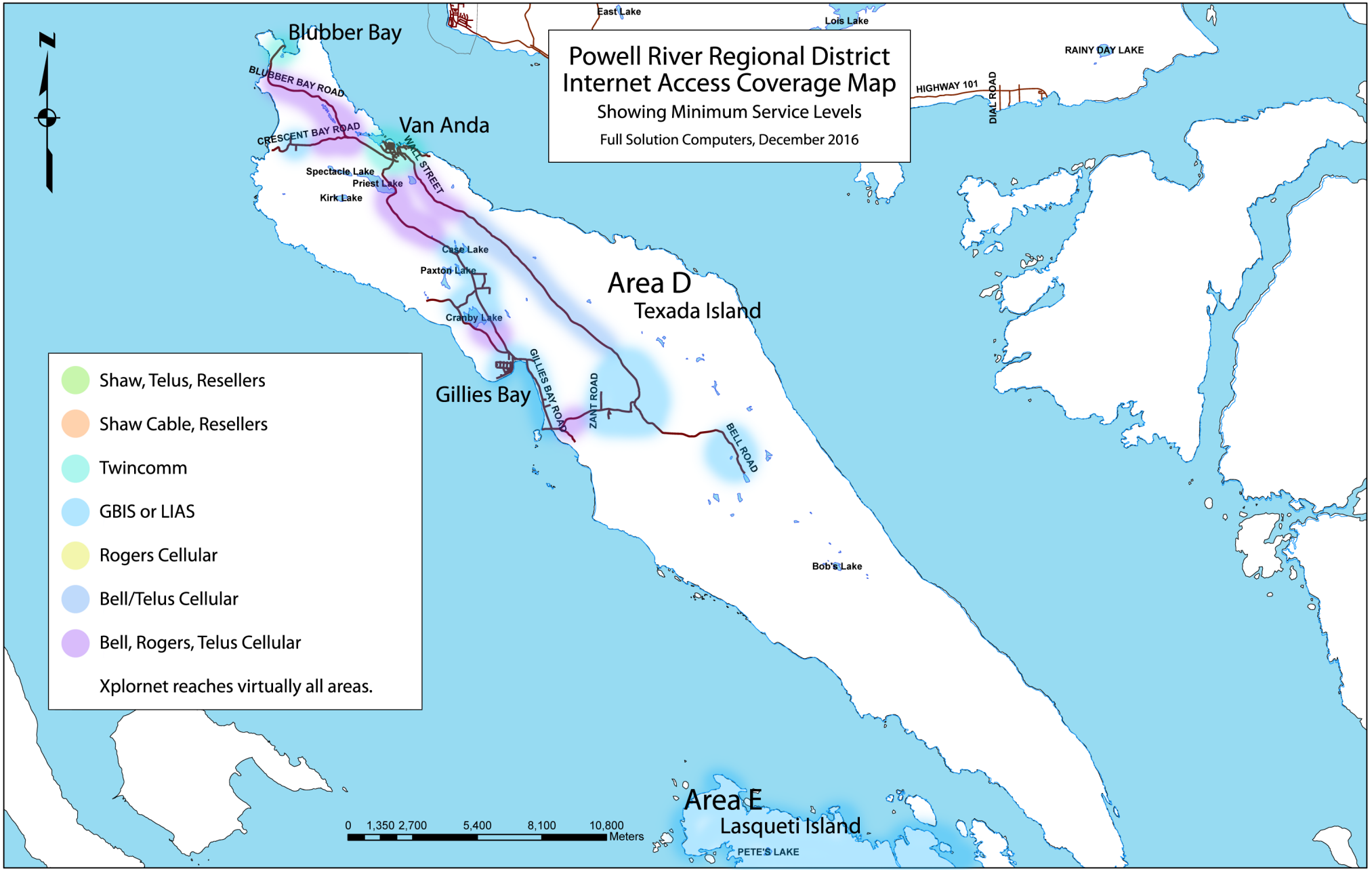
All data is based on our findings and area tests, and is current as of December 2016.

---

[61] Average download speed in BC is 16.6 Mbps, comparable to Powell River. Compare 16,600 to 56. *Canada's Internet Performance Report, CIRA.* April 2016


Powell River Regional District
Internet Access Coverage Map
Showing Minimum Service Levels
Full Solution Computers, December 2016
N
Shaw, Telus, Resellers
Shaw Cable, Resellers
Twincomm
GBIS or LIAS
Rogers Cellular
Bell/Telus Cellular
Bell, Rogers, Telus Cellular
Xplornet reaches virtually all areas.
Bliss Landing
Hernando Island
Lund
Okeover
Prior Road
Krompocker Road
Savary Island
Craig Road
Old Mine Road
Area A
Atrevida Road
Southview Road
Sturt Road
Wilde Road
Wildwood
Sliammon
Inland Lake
Sliammon Lake
CROWTHER ROAD
MALASPINA ROAD
PRIOR ROAD
HIGHWAY 101
CRAIG ROAD
ATREVIDA ROAD
SOUTHVIEW ROAD
WILDE ROAD
KLAHANIE DRIVE
BEACH ROAD
PETRIE LAKE
THULIN LAKE
0 700 1,400 2,800 4,200 5,600
Meters


Powell River Regional District
Internet Access Coverage Map
Showing Minimum Service Levels
Full Solution Computers, December 2016
Shaw, Telus, Resellers
Shaw Cable, Resellers
Twincomm
GBIS or LIAS
Rogers Cellular
Bell/Telus Cellular
Bell, Rogers, Telus Cellular
Xplornet reaches virtually all areas.
N
Nanton Lake
Powell Lake
Haslam Lake
Horseshoe Lake
Khartoum Lake
Cranberry Lake
Powell River
Duck Lake
MY LAKE
Hamill Lake
Area B
ELEPHANT LAKE
East Lake
PADGETT ROAD
Kelly Creek
ZILINSKY ROAD
PHILLIPS ROAD
DIXON ROAD
Area C
RAINY DAY LAKE
HIGHWAY 101
Myrtle Point
Stillwater
LOUBERT ROAD
ROBERTS ROAD
Lang Bay
Palm Beach
Thunder Bay
Saltery Bay
Black Point
Emily Lake
Priest Lake
0 900 1,800 3,600 5,400 7,200
Meters


Powell River Regional District
Internet Access Coverage Map
Showing Minimum Service Levels
Full Solution Computers, December 2016
Blubber Bay
BLUBBER BAY ROAD
CRESCENT BAY ROAD
Van Anda
WALL STREET
Spectacle Lake
Priest Lake
Kirk Lake
Case Lake
Paxton Lake
Cranby Lake
Gillies Bay
GILLIES BAY ROAD
ZANT ROAD
BELL ROAD
Area D
Texada Island
East Lake
Lois Lake
RAINY DAY LAKE
HIGHWAY 101
DIAL ROAD
Bob's Lake
Area E
Lasqueti Island
PETE'S LAKE
Shaw, Telus, Resellers
Shaw Cable, Resellers
Twincomm
GBIS or LIAS
Rogers Cellular
Bell/Telus Cellular
Bell, Rogers, Telus Cellular
Xplornet reaches virtually all areas.
0 1,350 2,700 5,400 8,100 10,800
Meters